INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH & DEVELOPMENT

ISSN 2278 – 0211 (Online)

Assessment of the Innovation Performance of Nigerian Quantity Surveying Firms

Ajayi, Akeem Adunfe
Lecturer, Department of Quantity Surveying, Bells University of Technology, Ota, Nigeria
Etiene, Obong Moses
Student, Department of Quantity Surveying, Bells University of Technology, Ota, Nigeria
Adebiyi, Hakeem Olalekan
Lecturer, Department of Quantity Surveying, Federal Polytechnic, Ede, Nigeria
Sanni, Afeez Olalekan
Lecturer, Department of Quantity Surveying, University of Jos, Nigeria

Abstract:
To attain a better competitive advantage due to the constantly evolving complexity of processes, products, and services, quantity surveying firms (QSFs) must establish a set of innovation performance indicators. This is because integrated innovativeness into practice can lead to an organization's success. However, QSFs in the study area are yet to sufficiently explore the potential benefits of innovation performance. This study examined the indicators of innovative performance and assessed the factors influencing the innovation performance of QSFs in the study area. A list of potential innovation performance dimensions and influencing factors have been identified through the literature review. A quantitative research method was adopted for this study. Of the 198 administered questionnaires, a total of 155 questionnaires were retrieved and used in this study. Collected data were analysed using frequency distribution, mean, standard deviation and Mann-Whitney U-test. The findings indicated that although all the innovation performance dimensions were somewhat important, the most undertaking indicator is the process innovation – that is, formation of alliances with others, effective research and development department in the firm, success in terms of developed long-term working relationships with other firms, and level of providing and exchanging experience with other firms. In another development, findings indicated that lack of rewards for innovation, lack of incentive for training investment and lack of qualified innovative personnel are the perceived most important barriers to innovation in QSFs in the study area. Overall, this study helps the QSFs to recognize which innovativeness should be emphasized and the barriers to guide against.

Keywords: *Barriers, innovation, innovation performance, quantity surveying firms, Nigeria*

1. Introduction

Without a doubt, the buzzword 'innovation' has become the subject of discussions across all aspects of human endeavour, the world over. Currently, innovation is a strategic tool to attain competitiveness and sustainable growth. The increasing importance of improving the innovation performance of quantity surveying firms (QSFs) has been noted in the literature (Ajayi *et al.*, 2021a; Antwi-Afari *et al.*, 2018; Hardie & Newell, 2011; Hardie *et al.*, 2005). Moyanga & Fadeke (2019) thought that quantity surveying firms in Nigeria are aware of innovative processes, systems, and products, required of them to meet the dynamic requirements of the construction industry. However, it is one thing to be aware of, or use innovative products and processes, and another is to derive the expected benefits from this innovation. This could be a result of the intangible nature of professional services quantity surveyors render. According to Zizlavsky (2016), there is a need to innovate with a strategic focus and wisely regardless of the magnitude of the investment in innovation. Similarly, Owolabi *et al*. (2019) suggested that although innovation can greatly improve the construction industry's potential, there are barriers that can prevent the actualization of the expected benefits. Therefore, the importance of considering organizations' innovation performance is without question and highly significant (Birchall *et al.*, 2011).

The research challenge to promote the measurement of firms' innovation performance is continuously receiving attention from scholars and professionals in the construction industry (Ajayi *et al.*, 2021a; Hardie *et al.*, 2012; Lo & Kam, 2021; Wang *et al.*, 2021; Yankah & Dadzie, 2015). Innovative performance is described as the quality of the innovation process (Mazur & Invo, 2017). While Zizlavsky (2016) described innovative performance as the ability to convert innovation inputs into outputs, Li & Zheng (2012) defined innovation performance as either innovation efficiency or innovation profitability, which means the inclusion of quality improvement, cost reduction and the advancement of added value. Similarly, innovative performance was defined as innovation efficacy, relative to the extent of success of an innovative initiative, and efficiency of innovation relative to the input expended to result in the level of success achieved (Tseng, 2016). Innovation performance as a trending concept in the global construction business domain had achieved

success despite the complex nature of the industry. The influence of this innovation performance should not be overemphasized as it affects firms' performance (Jonas & Donald, 2015; Ghasemagbaei & Calic, 2020). The issue of poor performance in the industry has been over flogged over the decades (Ajayi *et al.,* 2021b; Oglesby *et al.*, 1989; Yasamis *et al.*, 2002). Largely, past studies on performance focused on the financial direction of organizations (Lee *et al.*, 2021). In the past decades, at the organizational level, the extant literature has shown insufficient research efforts on the innovation performance of the construction industry (Saunila, 2017). However, firms are now paying good attention to innovation (Low & Kam, 2021), for which QSFs are not exempted. Quantity surveyors are potential innovators in collecting, managing data, and monitoring processes (Hardie *et al.*, 2005). Yet, little or no research exploring the measurement of innovative performance of the QSFs. Hence, it was concluded that the firms lack explicit focus on innovation (Onwusu-Manu *et al.*, 2017). Moreover, several research efforts focused on indicators and factors affecting the overall performance of QSFs (Osunsanwo & Dada, 2019; Adegbembo *et al.*, 2015). This is an indication of extant findings biased against the innovation performance of QSFs. A typical QSF, especially in developing countries, like Nigeria, possesses all the features of small construction knowledge-intensive professional service firms (SCKIPFs) as described by (Lu & Sexton, 2006). QSFs may be categorized as SMEs but the influence of their outputs is important in the industry. Hence, the need for innovation performance measurement of the firms is significant. This identified knowledge gap calls for an evaluation of innovation performance of perceived 'innovation blockers' (Hardie *et al.*, 2005). Hence, this study conducted a descriptive analysis to answer two pertinent research questions: (i) what the indicators of innovation performance are, and (ii) what inhibiting factors influence the QSFs' attainment of high-level innovation performance in the study area?

In the dynamic economic environment, the need to innovate is increasingly significant, hence, the QSFs must adjust by transforming services, especially the practices or beyond the known traditional scope. It is therefore pertinent to conduct this research into the innovative performance of QSFs and identify the barriers to excellent innovation performance to improve the overall organizational performance. This study is beneficial to Nigerian QSFs and the construction industry by extension because it prompts quantity surveying practitioners to reflect on their current state of innovativeness. This study helps the QSFs to recognize which innovativeness should be emphasized and the barriers to watch out for. Thus, repositioning the profession's competitive status to maximize opportunities and minimize threats. In addition, this study will encourage regulatory bodies vested with regulatory responsibilities over the built environment in the study area to enact relevant regulations and monitoring initiatives that will encourage the adoption of best practices in quantity surveying firms.

2. Literature Review

2.1. Innovation Performance

Innovation in technology in the construction sector has always been tremendous. According to Malik (2014), the design and application of machines and equipment to increase output and create better efficiency and productivity and quality products cannot be over-empathized as innovation. Most of these innovations are primarily in the processes of efficiency and effectiveness (Ibrahim, 2013). Afolabi *et al.* (2017) opined that there are tremendous improvements in innovative technologies within the construction sector because new equipment, methods, management and techniques have been improving over the years. The organization of Economic Cooperation and Development (OECD) as cited in (Ajayi *et al.*, 2021b), defined innovation as 'innovation as the implementation of a new or significantly improved product (goods or services), or a process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations'. Ogunbayo *et al.* (2018) maintained that there have been some examples of innovative equipment, materials, and technical efficiencies, including new patching materials, new pothole repair equipment, thermoplastic line painting, and project management system. Corroborating this, Owolabi *et al.* (2019) put the different dimensions of innovation in the construction industry as innovative procurement strategy; technical innovation; management innovation; and information technology (IT) innovation.

Performance was described as that capability to outweigh your competitors in terms of long-term prosperity and power (Ogunbayo *et al.*, 2018). The concept of sustainability is integrated into management and management accounting issues, referring to the concept of value. In addition, destruction or poor distributions of value are threats to business continuity (Malik, 2014).

Evidence through scientific exploration described innovation as the foundation of sustainability in the growth of a business concern. However, the magnitude of investment in innovation is not guaranteed efficiency of spending (Thomas, 2015). Hence, it is important to innovate with strategic direction. According to Ibrahim's finding (Ibrahim, 2013), which revealed that QSFs in Nigeria are aware of the innovative products and processes (in terms of services offered, software used, and diversification) required of them to meet the changing demands of the industry. However, these QSFs relatively adopt them. This is evident in the disposition of QSFs to the moderate adoption of innovative software. Just like in other aspects of performance, such as project success, innovation performance could be taken as an abstract concept. This is because the concept has no generally accepted definition. Afolabi *et al.* (2017) defined innovative performance as the 'quality of the innovation process which is crucial for competing organizations'. Malik (2014) defined innovative performance as the conversion of innovation inputs into outputs that meet identified needs. Thus, it can also be said to be the ability to transform innovative capabilities into market implementation, resulting in innovative market success. Owolabi (2019) defined innovativeness as 'the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than any other member of the system.' This explains that for an organization to improve its overall performance, in terms of increasing growth and better productivity, innovativeness is a strategic factor to be bear in mind. Consequently, the innovativeness of firms and the factors that contribute to it have been widely studied in the past few

years. In the general business and economic world, on one hand, large efforts in dealing with innovative performance measures exist. Recently, in the high-tech industry, the rush for firms' improvement in terms of performance is hinged on better innovative performance. Ghasemaghaei & Calic (2020) developed a framework using innovation performance to mediate the influence of big data on the performance of organizations in the United State. Similarly, a composite model was developed by Ghasemzadeh *et al.* (2019) to find out the influence of organizational learning and innovation culture on the innovation performance of pharmaceutical companies in Iran. Birchall *et al.* (2011) used future focus, market impact, capabilities and image, process, and sustainability and overall effectiveness as dimensions to measure the innovative performance of business organizations. Xie *et al.* (2018) measured innovation performance in the high-tech industry using new product annual turnover, modified product index, patent grow rate, and new product index. In addition, Zizlaysky (2016) measured the innovation success of the manufacturing business organizations of Czech. The study utilized product, process, organizational and marking innovations as the basis of measuring innovation performance.

In addition, in the information technology industry (IT), Waheed *et al*. (2019) mediated also the relationship that existed between new human resources management activities and innovation performance using organizational innovation and innovative climate. Enhancement of innovation success of Pakistanis IT companies is a function of new human resources management practices (Waheed *et al*., 2019). It was established that product innovation, process innovation, organizational innovation, marketing innovation are the elements of measuring of innovation performance of industries in China (de-Oliveira, *et al*., 2021). While Ghasemaghaei & Calic (2017) classified innovation performance into innovation efficiency and efficacy, Zheng *et al*. (2013) stated that innovative performance is of two dimensions, which include innovation efficiency and profitability. Innovation efficiency is described as the 'number of new products, the novelty of new products, the development speed of new production and the success ratio of new products; and innovation profitability known as the proportion of new product revenue, the improvement of quality, and the reduction of cost' (Zheng *et al*., 2013). Waheed *et al.* (2019) established quality of product or service, products and services development, subject organizational evaluation, ability to retain and attract employees, employee-management relationship, employees' flexibility, and innovative ideas as the indicators to measure innovation performance. The study of Prajogo & Ahmed (2006) measured innovation performance with product innovation and process innovation.

On the other hand, in the construction industry, innovation performance indicators vary. This is because behavioural attitudes towards embracing organizational change in terms of business strategies are not the same (Hardie *et al*., 2012). According to Choi *et al.* (2009), innovation performance indicators are product innovation and process innovation. The study measured the mediating influence of innovation performance on the link between the construction firms' innovation and performance. In the study of 183 Chinese construction companies, it was concluded that there exists a direct relationship between organizational culture and the innovation speed and quality of the firms (Chen *et al*., 2018). In the study of Hardie *et al.* (2012), improve efficiency/productivity, improve technical performance, improve quality, improve accuracy, reduce cost, reduce in time, respond to clients/customers need, meet regulations/standards, and others are the identified drivers to innovation performance. Being a function of multiple indicators, Lo & Kam (2021) emphasized innovation success should be measured in different organization strategies, processes and outputs. The study formulated appropriate innovation performance evaluators through a systematic literature review and interview with professionals in the industry. The indicators are classified into two: leading (i.e., input/process) indicators and lagging (output/outcome) indicators. While the leading indicators are the creativity of employees, innovation process, durability, ideas and knowledge, and strategic alignment, the lagging indicators are the return on investment, impact, and quality of new ideas (Lo & Kam, 2021). In assessing the intellectual capital and knowledge sharing of Chinee construction companies, Li *et al*. (2019) measured innovation performance using the level of patents and technical documentation, level of development in terms of more efficient processes comparison with competitors, the positive response of new products from the market, level of advancement in scientific research, and first to introduce new products/services. Nevertheless, despite the advancement in the field of innovation performance, there exist some factors hindering the accrued benefits of this concept.

2.2. Barrier Factors Influencing Innovation Performance

Innovativeness of not too large an organization is said to be a motivating strategy to improve competitiveness. Quantity surveying firms are like any other consultancy organization in the construction industry. Many inhibiting factors affect their performance. The evolving nature of the construction industry requires all construction professionals, including Quantity Surveyors to continuously improve their services to create a more competitive position. Hence, identifying key factors inimical to higher innovation performance of consultancy firms like quantity surveying firms (QSFs) will ensure improved productivity and performance. To a larger extent, identifying and assessing these barriers will help the QSFs to reduce negative factors and embrace innovation performance implementation.

This study reviewed extant literature to amass potential barriers influencing innovation performance. At the organizational level outside the construction industry, Gunduz & Alfar (2019) identified among other barriers to innovation: lack of financial resources; time constraint; temporary nature of construction products; unavailability of materials; lack of experienced and qualified staff; lack of clear benefits; and unsupportive organizational culture. Szambelan *et al.* (2019) identified price competition; competition on product quality, reputation or brand; competitors' market-dominant; innovation by competitors; and lack of demand as the market-based innovation barriers that are inimical to firms' innovation performance in German organizations. Using a questionnaire survey in the Nigerian manufacturing industry, Adegbite & Govender, 2021) focused on management barriers to innovation performance. The study investigated management support; low motivation, resistance to change, risk avoidance behaviour, and financial resource as the inimical factors to better innovation success (Adegbite & Govender, 2021).From the perspective of small

and medium enterprises (SMEs), Odei *et al.* (2021) established inadequate funds, low adoption of technology, low level of competition, and lack of competent employees as the barriers restricting the technological innovation of the industry. Financial barriers, skill and relation barriers, and market and institutional barriers are the major categories of challenges to innovation performance industries in Wuxi, China (de-Oliveira *et al.*, 2021). In Mexico, Santiago *et al*. (2016) carried out an empirical survey of SMEs in manufacturing and service industries to classify ten (10) barriers to innovation into five (5) groups namely: regulation, knowledge, financial, cost of innovation, and market barriers. In Australian SMEs, Hardie & Newell (2011) determined the influencing factor affecting technical innovation in the construction industry. The study identified company resources, client and end-user influence, project-based conditions, industry networks, and regulatory climate as the main headings for construction innovation enablers. Recently, a study of barriers influencing the innovation processes of companies in Ecuador was carried out (Carvache-Franco *et al.*, 2016). The study identified 10 barriers that were grouped into market factors, cost and financing factors, and knowledge factors (Carvache-Franco *et al.*, 2016).

Generally, in the construction industry, Suprum & Stewart (2015) identified sixteen (16) barriers to innovation diffusion in Russian construction companies. The barriers are the high cost of innovation; inadequate support from the government; stern regulation restricting innovation; hostile attitude between parties; tendering and procurement; poor researching funding; differing building codes and standards; substantial economic risk; non-effective corporation within the consultants; fear of innovation implementation; and lack of established promotion scheme for new technology (Suprum & Stewart, 2015). Others are fragile university-research centres-construction industry contracts; expectation of short-term profit; lack of demand and willingness of clients and developers; lack of necessary information and modern technologies; and differences in both technical and legal aspects regionally (Suprum & Stewart, 2015). The foregoing described factors impacting other performance criteria, but the focus of this study is on innovative performance. In Ghana, Yankah & Dadzie (2015) investigated the QSFs and found out that poor financial resources, unfavourable economic conditions, fragmented nature of the industry, legislation failure, and non-requirement of innovation are the top five barriers impeding innovation performance of the firms. Again, in Ghana, Antwi-Afari *et al.* (2018) studied the challenges to the innovativeness of the quantity surveyors and QSFs. The study identified corruption, the need to ensure higher standards, poor procurement system, inadequate skill in technology application, inefficient value chain, etc. as the key challenges to the innovativeness of QSFs. In the Nigerian construction industry, Owolabi *et al.* (2019) described some factors that influence the level of innovation performance, and this includes strategy, leadership, culture, organizational structure, processes; people, and relationships/networking. Others are technological infrastructure for innovation; measurement; and learning.

This study is taken innovation performance to be an important indicator of organizational effectiveness in service-oriented organizations more specifically in Nigerian QSFs because the firms need to be constantly involved in every stage of the construction process, which will involve a continuous process of innovating new products, ideas, services, and processes. The adoption of innovative practices is suggested to be better than relying on the 'business as usual' syndrome (Yankah & Dadzie, 2015). In Nigeria, the QSFs' innovative performance improvement is progressing at a slow pace despite the performance strive (Antwi-Afari *et al.*, 2018; Olanipekun *et al.*, 2013). Therefore, it is necessary to conduct scientific research to determine ways of improving the performance through innovation measurement and the inhibiting factors that could be affecting innovation performance. Past studies, as reviewed in this study, have revealed robust diverse opinions on what to measure organizations' innovation performance with. This study adopted the studies of Zizkaysky (2016) that comprehensively captured various aspects of innovation performance. In the same vein, this study adopted the measuring instrument used in the study of de-Oliveira *et al.* (2019) to measure the barriers to innovation performance. These past studies were based on empirical analysis. Hence, Table 1 summarizes the elements of the main two constructs of innovation performance and barriers to innovation performance in this study.

3. Research Method

The quantitative research method was used because the study objectives centred on exploring in-depth knowledge of innovation performance [49] as related to QSFs. This study examined the indicators of innovation performance and identified and assessed inhibiting factors to innovation performance among the QSFs in Nigeria. Only QSFs registered with the Quantity Surveyors Registration Board of Nigeria (QSRBN) and are on the current list of active firms were considered in this study (QSRBN, [50]2020). The Board is the only body recognised by the law of the country to register quantity surveyors. According to the Board's directory, three hundred and thirty-eight (338) QSFs are currently active nationwide [50]. However, the scope of this study was limited to Lagos and Abuja only. These two locations are believed to house a high considerable number of QSFs' head offices. According to Adegbembo *et al.* (2015), Lagos and Abuja are suitable for a study that requires head offices of QSFs to provide information. In addition, Lagos and Abuja are the hearts of construction work in Nigeria Adeleke *et al.*, 2017). Furthermore, these two study areas have large numbers of vibrant members of the quantity surveying profession.

The targeted respondents in these QSFs were principal partners, partners or senior quantity surveyors. These top management cadres were believed to be the best fit in providing relevant and reliable information required for this study. The respondents were asked to rate the level of agreement with each item related to the specific objectives of this study, using the common five-point Likert scale of 5–1. Where the number value 5 represented Strongly Agree while 1 represented Strongly Disagree. This was used to calculate the respondents' mean score for each variable ranked. Previous studies in the construction industry have used this approach (Ajayi *et al.*, 2021b; Ajayi *et al.*, 2022). For now, 120 and 78 QSFs are currently practising in Lagos and Abuja respectively. Hence, a total of 198 QSFs served as the sampling frame for this study. But due to the manageable size of these 198 QSFs, the questionnaire designed was administered to all sampled QSFs. This implied that a census survey was adopted.The questionnaire was pretested for clarity and relevance through a

pilot study through quantity surveyor experts' opinions from academics and practice before delivering to the respondents. The questionnaire was divided into sections. Section A records the general characteristics of the respondent firm, such, as years of work experience, position held in the company, educational qualification, and position in the organization. Section B has to do with the study's specific objectives, which assessed the innovation performance and barriers to innovations performance within QSFs in the study areas. The questionnaires were administered and completed under the researchers' supervision in this study. This reduced non-response and allowed for great flexibility. After asserting the internal reliability and consistency of the data collected, descriptive analysis was done for the study. Hence, the Mean Score (MS) of the level of agreement or disagreement of the respondent's choice to the questions was measured. In obtaining the MS, the relevant innovation performance indicators and the barriers to innovation performance identified from the literature were rated by the respondents using the Likert scale as early discussed. The MS was ranked accordingly and this helped in cross-comparisons. The Likert scale was converted into the MS for each of the variables. The MSs (ranging between 1.0-5.0) for the two groups of respondents (i.e., QSFs in Abuja and Lagos) were determined using statistical packages for the social sciences (SPSS) version 23 software. Following the route suggested by Johns (2010), variables with MSs greater than or equal to (≥) 3.00 range of Likert scale used are the most important variables. Hence, using Likert's scale 1-5, any variables with MS greater than 3.00 were considered the most important factors in this study. Also, the study tested for agreement in the opinions of respondents from Abuja and Lagos. A commonly used non-parametric technique, Mann-Whitney U, was employed to determine if there exist any agreement between the opinions of the respondent from two locations of the study area. The data were collected between the period December 2019 to September 2020.

Dimensions	Sub-measurement Items
Innovation Performance dimensions	
Service Innovation	1. The firm provides a diverse range of services to the client; 2. firm anticipates the client's need and other offers solutions; 3. The firm collaborates with end-user to develop new services and products; 4. The firm changes its organizational structure when needed to meet the client's needs
Process innovation	5. The firm develops long-term working relationships with other firms; 6. The firm develops software within the firm to make service delivery easier and of higher quality; 7. The firm forms alliances with other firms to offer services to clients; 8. The firm has a research and development department within the firm
Market innovation	9. The firm engages in research on current market trends; 10. The firm reviews the level of client satisfaction over time; 11. The firm renders service even outside the construction industry; 12. The firm anticipates clients' needs
Organizational Innovation	13. The firm engages employees in major decisions; 14. There is a reward and recognition system within the firm to motivate employees; 15. Major decisions are usually taken at the management level; 16. The firm empowers employees for innovation
Resource Innovation	17. The firm has an active in-house research unit; 18. The firm collaborates with external professional units; 19. Provides external training and professional development for staff; 20. Provides and exchanges experience with other firms
Barriers a	
Finance challenges	1. Excessive perceived economic risk; 2. Direct cost for innovation too high; 3. Cost of finance; 4. Lack of finance from sources outside your company; 5. Lack of funds within your company or group
Skill and relation barriers	6. Lack of qualified personnel; 7. Lack of incentives for training investment; 8. Lack of freedom to develop own ideas; 9. Lack of rewards for innovation; 10. Low level of idea sharing within the firm; 11. Strong control and orientation of work from the boss; 12. Low level of cooperation inside the company; 13. Lack of information on technology; 14. Lack of market information; 15. Difficulty in finding partners to innovate together
Market and institution barriers	16. Low level of confidence in local institutions; 17. Low level of protection of intellectual property; 18. Influence from governments—central, provincial, and local; 19. Active involvement of the government in the R&D activity; 20. Low level of relationship with research institutions; 21. Market dominated by well-established companies

Table 1: Innovation Performance Measurement and Barriers Affecting Innovation Success
Source: de Oliveira et al. [35] [a]

4. Data Analysis and Results

In this section, the results of the survey were presented below for the objective of this study. The first part of the analysis in this study presented the background information of respondents, while the second part presented the ranking of innovation performance and barriers to innovation performance in the order of perceived importance to the QSFs. Of the 120 questionnaires administered to QSFs in Lagos, 96 were returned duly completed. Similarly, from the 78 questionnaires sent to QSFs in Abuja, 59 were also returned duly completed. These represented response rates of 80% and 76% for QSFs in Lagos and Abuja respectively. In all, 155 copies of the questionnaire were obtained and used for the analysis in this study.

From Table 2, the descriptive analysis indicated that almost half (50%) of individual respondents had between 0-10years of work experience in both Lagos and Abuja. This implies that the respondents have enough years of experience in their respective firms to be able to assess the issue of innovation performance and its barriers. In terms of educational qualifications, over 70% of the respondents in both Lagos and Abuja had not less than a Bachelor degree, while the remaining less than 30% had Diplomas. In addition, the majority (approximately 65%) of the respondents from both locations indicated that their firms had less than or equal to 20 employees. In other to validate the findings from this study, the levels of involvement of the respondents in decision-making in the firms were ascertained. The analysis indicated that not less than 68% of the respondents were principal partners and partners in the QSFs sampled, while the remaining 31.6% (49) were senior quantity surveyors. This implied that most of the respondents sampled had a better understanding of the firms' operation and management procedures and were involved in the day-to-day running of the firms. Considering the demographic characteristics of the respondents involved, it guaranteed the good quality and reliability of the findings and conclusion emanated from this study.

Work Experience in Years Lagos & Abuja		**Employee Size Lagos & Abuja**		**Educational Qualification Lagos & Abuja**		**Position Held Lagos & Abuja**	
	(Freq., %)		(Freq., %)		(Freq., %)		(Freq., %)
0 – 5	21, 13.5	0 – 10	49, 31.6	PhD.	2, 1.3	PP	37, 23.9
5 -10	46, 29.7	10 – 20	51, 32.9	M.Sc.	58, 37.4	P	69, 44.5
10 – 15	44, 28.4	20 – 30	30, 19.4	B.Sc.	48, 31.0	SQS	49, 31.6
15 – 20	27, 17.4	30 – 40	13, 8.4	H.N.D	24, 27.7		
Above 20	17, 11.0	Above 40	12, 7.7	N.D.	4, 2.6		
Total	155, 100		155, 100		155, 100		155, 100

Table 2: Freq. – Frequency, PP – Principal Partner, P – Partner, SQS – Senior Quantity Surveyor
Table 2: Summary of Respondent's Profile (Overall)

For research findings to yield reliable conclusions, it is expected that the constructs and variables emanated from literature be subjected to further analysis. Hence, the reliability, consistency and accuracy of the instrument used to collect data in this research were subjected to Cronbach's analysis using SPSS. This is suitable for the measuring instrument used here (Bolarinwa, 2015). Past studies have applied this analysis in the construction management literature (Ajayi *et al.*, 2021b; Wang *et al.*, 2021). Table 3 showed that Cronbach's alpha ranges from 0.721 – 0.874. Most of the eight constructs had Cronbach's alpha greater than 0.8, except for 'skill and relation' and 'market and institution' barriers which had Cronbach's alpha less than 0.8. These values are greater than the minimum coefficient of 0.70 considered to be suitable (Benmansour & Hogg, 2002).

Variables	**Items before Deletion**	**Items after Deletion**	**Cronbach's Alpha**
Service Innovation	4	3	0.808
Process innovation	4	4	0.824
Market innovation	4	4	0.824
Organizational Innovation	4	4	0.847
Resource Innovation	4	4	0.812
Finance challenges	5	5	0.813
Skill and relation barriers	10	10	0.798
Market and institution barriers	6	5	0.721

Table 3: Cronbach's Alpha Test

4.1. Mean Analysis of Innovative Performance Indicators

This study presented innovation performance indicators grouped into five categories to the respondents in QSFs in Lagos and Abuja, Nigeria. Table 4 revealed the mean scores results for the 5 indicators and 19 sub-indicators of innovation performance of the QSFs. Both the main indicators and all the 19 sub-indicators assessed by the respondents have mean scores greater than 2.50. Overall, from the process innovation category, the highest-rated items are 'forming alliances with other firms to offer quantity surveying services' (mean = 3.47; 1st), followed by 'availability of research and development department within the firm' (mean = 3.32; 2nd), and 'development of long-term working relationships with other firms' (mean = 3.05, 3rd). In the resource innovation category, the highly-ranked indicators are 'the QSFs provide and exchange experience with other firms' (mean = 3.21; 1st) and followed by 'collaboration with external professional units' (mean = 3.19; 2nd). In market innovation, 'QSFs empowers employees for innovation' (mean = 3.09, 1st) and

followed by 'firm engages employees in major decisions' (mean = 3.00, 2nd). 'The firm changes its organizational structure when needed' (3.30; 1st) and 'firm anticipates the client's need and offers solutions' (2.86; 2nd) are the highly-ranked indicators for service innovation. Lastly, in the organizational innovation, 'firm renders service outside the construction industry' (3.12; 1st), followed by 'engagement in research on current market trends' (3.09; 2nd), and 'reviews of the level of client satisfaction over time' (3.08; 3rd).

Innovation Dimension	Abuja (n=59)			Lagos (n=96)			Overall (N=155)	
	Mean	Std. Dev.	Rank	Mean	Std. Dev.	Rank	Mean	Rank
Process Innovation							**3.20**	
The firm forms alliances with other firms to offer services to clients	3.37	1.376	1	3.53	1.196	1	3.47	1
The firm has a research and development department within the firm	3.25	1.183	2	3.35	1.133	2	3.32	2
The firm develops long-term working relationships with other firms	3.05	1.319	4	3.05	1.268	3	3.05	3
The firm develops software within the firm to make service delivery easier and of higher quality	3.19	1.058	3	2.83	1.167	4	2.97	4
Resource Innovation							*3.17*	
Provides and exchanges experience with other firms	3.34	1.092	1	3.14	1.072	1	3.21	1
The firm collaborates with external professional units	3.31	1.207	2	3.11	1.178	3	3.19	2
Provides external training and professional development for staff	3.19	1.224	3	3.14	1.157	1	3.15	3
The firm has an active in-house research unit	3.19	1.196	3	3.10	1.318	4	3.14	4
Market Innovation							*3.05*	
The firm empowers employees for innovation	3.14	1.152	1	3.06	1.131	1	3.09	1
The firm engages employees in major decisions	3.02	1.306	3	2.99	1.302	2	3.00	2
There is a reward and recognition system within the firm to motivate employees	3.05	1.090	2	2.93	1.199	3	2.97	3
Major decisions are usually taken at the management level	2.88	1.261	4	2.78	1.154	4	2.82	4
Service Innovation							*2.97*	
The firm changes its organizational structure when needed to meet the client's needs	3.39	1.313	1	3.24	1.229	1	3.30	1
The firm anticipates the client's need and other offers solutions	3.00	1.203	2	2.78	1.154	2	2.86	2
The firm collaborates with end-user to develop new services and products	2.90	1.170	3	2.68	0.979	3	2.76	3
Organizational Innovation							*2.97*	
The firm renders service even outside the construction industry	3.10	1.170	1	3.13	1.088	2	3.12	1
The firm engages in research on current market trends	3.02	1.225	3	3.14	1.092	1	3.09	2
The firm reviews the level of client satisfaction over time	3.07	1.032	2	3.08	1.053	3	3.08	3
The firm anticipates clients' needs	2.88	1.353	4	2.92	1.167	4	2.90	4

Table 4: Innovation Performance Indicators

In addition, as revealed in Table 4, there exists a slight difference in the way respondents in Abuja and Lagos rated the innovation performance indicators in this study. For example, in process innovation, the respondents from Abuja rated 'developing long-term working relationships with other firms' 4th position, and respondents from Lagos rated the same variable 3rd position. While 'collaboration with external professional units' was ranked 2nd position by respondents from Abuja, the same item was ranked 3rd position under the resource innovation category. Concerning market innovation, 'firms engage employees in the major decision' was ranked in 2nd position by QSFs in Lagos and 3rd position by their

counterpart in Abuja. In addition, the respondent in Abuja ranked 'rendering service even outside the industry' 1st position in organizational innovation, and QSFs from Lagos rated the same indicator in the 1st position.

In summary, from Table 4, there exists a robust multiplicity within the innovation performance measured. The overall mean scores for the main indicators of innovation performance given by the sampled QSFs in the two study areas (Table 4) rated process innovation considerable higher (mean = 3.20; 1st) than others. This is sensible as QSFs provide service, i.e., professional practices to their clients during the construction process. Resource innovation was rated 2nd (mean = 3.17), followed by market innovation with a mean score of 3.05. Service innovation and organizational innovation had a mean score of 2.97 each.

Table 5 revealed the Mann-Whitney test confirming that the innovative performance measurement of service innovation, process innovation, organization innovation and resource innovation in Abuja was statistically not significantly higher than that of Lagos (U = 2489.500, 2712.500, 2672.000, and 2587.500, p = 0.202, 0.658, 0.553, and 0.365 respectively). However, market innovation in Lagos was not significantly higher than that of Abuja (U = 2791.000, p = 0.881 > 0.05). From this analysis, it is clear that there exists no significant difference in the innovation performance of QSFs in Lagos and Abuja.

Categories	Mean Rank		U Statistics	Significant	Remark
	Abuja	Lagos			
Innovation performance dimensions					
Service Innovation	83.81	74.43	2489.500	0.202	Not significant
Process Innovation	80.03	76.76	2712.500	0.658	Not significant
Market Innovation	77.31	78.42	2791.000	0.881	Not significant
Organizational Innovation	80.71	76.33	2672.000	0.553	Not significant
Resource Innovation	82.14	75.45	2587.500	0.365	Not significant

Table 5: Mann-Whitney U Test for Innovation Performance Measure

4.2. Barriers to Innovative Performance

This study presented 21 barriers to innovation performance grouped into three categories [35] to the respondents in QSFs in Lagos and Abuja, Nigeria. Table 6 revealed the mean analyses for the barriers. Both the main factors and all the sub-factors assessed by the respondents have mean scores above 2.50. Overall mean scores from the skill and relation barriers category, the highest-rated items are 'lack of reward for innovation' (mean = 4.10; 1st), followed by 'lack of incentive for training investment (mean = 4.07; 2nd), and 'lack of qualified personnel' (mean = 3.90, 3rd). In the market and institution barriers category, the highly-ranked factors are 'influence from governments' (mean = 3.30; 1st) and followed by 'level of relationship with research institute' (mean = 3.05; 2nd). In the finance challenges category, 'cost of finance' (mean = 3.12, 1st), followed by 'the direct cost for innovation is too high' and 'excessive perceived economic risk' with mean scores of 2.94 each. 'The firm changes its organizational structure when needed' (3.30; 1st) and 'firm anticipates the client's need and offers solutions' (2.86; 2nd) are the highly-ranked indicators for service innovation.

In addition, as revealed in Table 6, there exists a robust difference in the way respondents in Abuja and Lagos rated the barriers to innovation performance in this study. The differences in the mean scores of the two locations sampled were compared as follows. In the skill and relation barriers, the respondents from Lagos rated 'lack of rewards for innovation' 1st position, while respondents from Abuja rated the same variable 2nd position. While 'collaboration with external professional units' was ranked 2nd position by respondents from Abuja, the same item was ranked 3rd position under the resource innovation category. Concerning market innovation, 'firms engage employees in the major decision' was ranked in 2nd position by QSFs in Lagos and 3rd position by their counterpart in Abuja. In addition, the respondent in Abuja ranked 'rendering service even outside the industry' 1st position in organizational innovation, and QSFs from Lagos state rated the same indicator in the 1st position.

Barriers	Abuja *(n=59)*			Lagos *(n=96)*			Overall *(N=155)*	
	Mean	Std. Dev.	Rank	Mean	Std. Dev.	Rank	Mean	Rank
Skill and Relation Barriers							3.55	
Lack of rewards for innovation	4.02	1.042	2	4.16	0.944	1	4.10	1
Lack of incentives for training investment	4.03	0.909	1	4.09	0.884	2	4.07	2
Lack of qualified personnel	3.93	1.065	3	3.89	1.035	4	3.90	3
Low level of idea sharing within the firm	3.86	0.973	5	3.90	1.010	3	3.88	4
Low level of cooperation inside the company	3.93	1.032	3	3.78	1.097	6	3.84	5
Difficulty in finding partners to innovate together	3.66	0.883	6	3.87	0.932	5	3.79	6
Strong control and orientation of work from the boss	3.03	1.245	7	3.09	1.057	7	3.07	7
Lack of information on technology	2.81	1.319	8	3.06	1.074	9	2.97	8

Barriers	Abuja (n=59)			Lagos (n=96)			Overall (N=155)	
	Mean	Std. Dev.	Rank	Mean	Std. Dev.	Rank	Mean	Rank
Lack of freedom to develop own ideas	2.76	1.291	9	3.06	1.230	9	2.95	9
Lack of market information	2.69	1.235	10	3.08	1.245	8	2.94	10
Market and Institution Barriers							2.98	
Influence from governments—central, state or local	3.39	1.313	1	3.24	1.229	1	3.30	1
Low level of relationship with research institutions	3.20	1.171	2	2.96	1.045	2	3.05	2
Active involvement of the government in the R&D activity	2.95	1.265	4	2.94	1.084	3	2.94	3
Low level of confidence in local institutions	3.00	1.203	3	2.78	1.154	4	2.86	4
Low level of protection of intellectual property	2.90	1.170	5	2.68	0.979	5	2.76	5
Finance Challenges							2.93	
Cost of finance	3.22	1.175	1	3.05	1.137	1	3.12	1
The direct cost for innovation is too high	2.97	1.273	3	2.93	1.172	2	2.94	2
Excessive perceived economic risk	3.03	1.414	2	2.87	1.225	3	2.94	2
Lack of finance from sources outside your company	2.97	1.098	3	2.84	1.127	4	2.89	4
Lack of funds within your company or group	2.69	1.342	5	2.83	1.130	5	2.78	5

Table 6: Barriers Affecting Innovation

In summary, from Table 4, there exists a robust multiplicity within the innovation performance measured. The overall mean scores for the main indicators of innovation performance given by the sampled QSFs in the two study areas (Table 4) rated process innovation considerable higher (mean = 3.20; 1st) than others. This is sensible as QSFs provide service, i.e., professional practices to their clients during the construction process. Resource innovation was rated 2nd (mean = 3.17), followed by market innovation with a mean score of 3.05. Service innovation and organizational innovation had a mean score of 2.97 each.

Table 7 also revealed the Mann-Whitney test confirming that the financial challenges and market and institution barriers in Abuja were statistically not significantly higher than that of Lagos (U = 2653.000, and 2457.000, p = 0.508, and 0.165 respectively). However, skill and institution barriers in Lagos was not significantly higher than that of Abuja (U = 2539.500, p = 0.208 > 0.05). From this analysis, it is clear that there exists no significant difference in the opinions of the respondents from QSFs in Lagos and Abuja.

Categories	Mean Rank		*U* Statistics	Significant	Remark
	Abuja	Lagos			
Barriers Innovation performance					
Finance challenges	81.03	76.14	2653.000	0.508	Not significant
Skill and relation barriers	73.04	81.05	2539.500	0.208	Not significant
Market and Institution barriers	84.36	74.09	2457.000	0.165	Not significant

Table 7: Mann-Whitney U Test for the Barriers

5. Discussion of Findings

Successfully managing a firm requires a comprehensive process of utilizing various measures such as innovation performance. Quantity surveying firms (QSFs) need to establish a set of innovation performance indicators as a basis at the organizational level to improve overall firm performance. This study explored the indicators of innovation performance and the inhibiting factors influencing the QSFs' attainment of high-level innovation performance in the study area. Of the one hundred and fifty-five (155) QSFs sampled for this study, results indicated that 96 of the firms are in Lagos, while 59 are in Abuja. Over 68% of the responses are from Principal Partners and Partners.

Results revealed that majorly all the dimensions of innovation performance measurements were somehow indicated as important by the respondents (see Table 4). The top-rated dimensions assessed in this study were distributed among the five categories of innovation performance. This is an indication that the firms surveyed are trying all possible available forms of innovation to improve their overall performance. This finding is compatible with the study of Moyanga *et al.* (2019), which implied that the QSFs in the study area might have no specific dimension of innovation to measure their innovation performance. Or it could be that in QSFs, the combination of the identified dimensions measures innovative performance better. This finding means that both product and process innovation factors could no longer be adequate determinants of QSFs innovation success. From the five innovation performance measures assessed in this study, process innovation was highly rated. This indicated that the QSFs placed significant emphasis on creating new processes

or practices by either forming alliances with other firms or through the creation of in-house research & development unit. This result is in agreement with the finding of Ibrahim (2013), which affirmed the high level of awareness of QSFs in Nigeria in the innovative process of delivering their services. Choi *et al.* [38] described process innovation as a component of innovation performance where activities that transform the practices or processes utilized in delivering one's service to satisfaction of the client.

For the influencing barriers, this study has shown that the top-ranked barriers to innovation performance of QSFs were distributed among the three categories of barriers namely, skill and relation barriers, market and institution barriers, and financial challenges. These findings indicated that the QSFs think that the barriers to innovation performance are multifaceted. This study revealed that the skill and relationship perspective included six barriers that received a significantly high rating by the surveyed respondents, viz.: lack of rewards for innovation, lack of incentives for training investment, lack of qualified personnel, low level of idea sharing within the firm, low level of cooperation inside the company, and difficulty in finding partners to innovate together. From these six barriers, 'lack of reward for innovation' stands out to be the most important barrier to innovation. This finding is consistent with a recent study conducted in Nigerian QSFs suggested that the adequacy of a rewarding system to motivate employees is an important enabler of innovation implementation [1]. It is a way of acknowledging or recognizing employees' outstanding performance. Afolabi *et al.* (2017) confirmed that QSFs are found wanting in giving adequate attention to employees with outstanding performance. Following lack of rewards is lack of incentives for training investment, which has the second-highest mean score (see Table 6).

Unlike in the rewarding system, incentives are meant for employees to give their best in terms of performance. These issues mostly lead to the abysmal performance of employees and this also makes the employees prefer working with contracting firms (Ogunbayo *et al.*, 2018). This finding is not consistent with the study of de Oliveira *et al*. (2021), which shows insufficient financial outlets and markets as the most important hindering factors to the innovation performance of SMEs in China. The third most important barrier under the skill and relation factor in this study is the lack of qualified personnel. It is shown in past studies Carvache-Franco *et al*. (2022), that lack of qualified personnel regarded as a knowledge factor is an important barrier that has a positive and direct impact on the innovation performance of Ecuadorian companies. This finding conforms with the studies of Carvache-Franco *et al*. (2022), which indicated influence on innovative performance. The lack of qualified personnel in QSFs could limit innovativeness. Effective utilization of skill and relation resources are keys to innovation success. Hence, for better improvement of the overall performance of QSFs, skill and relation barriers affecting innovativeness needed to be filtered appropriately.

Regarding market and institution barriers, the influence from governments is also an important factor hindering the innovation performance of QSFs in this study area. In ensuring societal sanity in market space, government intervene in all endeavours politically and legally to safeguard market activities (Benmansour & Hogg, 2002).

6. Conclusions

This study assessed the innovation performance of quantity surveying firms in Lagos and Abuja, Nigeria. In this context, innovation performance measures and their barriers were investigated using descriptive analysis. In attaining a better competitive advantage due to the constantly evolving complexity of processes, products, and services, QSFs need to establish a set of innovation performance indicators at the organizational level.

The findings indicated that despite a robust multiplicity within the innovation performance indicators, process innovation, resource innovation, and market innovation dimensions are given statistical importance. The most significant dimensions are the level of formation of alliances with others, the effectiveness of the research and development department in the firm, and the level of success in terms of developed long-term working relationships with other firms. This study also identified and assessed some factors inhibiting the innovation performance of QSFs in Nigeria. Although most of the barriers assessed were ranked above average, the top four barriers inimical to the innovation success of the firms sampled are lack of rewards for innovation, lack of incentive for training investment and lack of qualified innovative personnel. All are grouped as skill and relation factors. It would be in the interest of the professional institute (i.e., Nigerian Institute of Quantity Surveyors) to sensitize their members on the need to have a good skill and relation system. This is necessary to have an encouraging work environment that will foster innovative performance. It is worthy of note that finance challenges as a barrier factor are not taken to be too serious in this study. This is a surprising finding that deviated from most studies from an economic perspective. Finally, the using Mann-Whitney U correlation, there exists no significant difference between the opinions of the QSFs in Lagos state and Abuja.

This study explored the innovation performance measure and the barriers to innovation performance of QSFs in Lagos and Abuja, Nigeria using descriptive analysis. A future research area could investigate the relationships between the identified performance measures and the barriers to better understand the innovation performance measures. In addition, the views of QSFs throughout the federation should be considered instead of limiting the scope of the study to Lagos and Abuja only. This could help in developing a benchmark to compare organizations within and beyond the construction industry.

7. References

i. Adegbembo, T.F., Awodele, O., & Ogunsemi, D.R. (2015). Assessment of knowledge management practices in quantity surveying firms in Lagos and Abuja, Nigeria. Information and Knowledge Management, 5(11), 11-19.
ii. Adegbite, W.M., & Govender, C.M. (2021). Management barriers to innovation performance in Nigerian manufacturing sector. African Journal of Science, Technology, Innovation and Development, https://doi.org/10.1080/20421338.2021.1991553
iii. Adeleke, A.Q., Bahaudin, A.Y., Kamaruddeen, A. M., Ali-Khan, M.W., Yao, L., Sorooshian, S., Fernando, Y., Nawanir, G., & Salimon, M.G. (2017). The influence of organizational external factors on construction risk management in Nigerian construction companies. Safety and Health at Work, 9(1), 115-124.
iv. Afolabi, A., Oyeyipo, O., Ojelabi, R, & Tunji-Olayeni, P. (2017). E-maturity of construction stakeholders for a web-based e-procurement platform in the construction industry. International Journal of Civil Engineering and Technology, 8(12), 465-482.
v. Ajayi, A.A., Babalola, O., Adesoye, M., Adebiyi, H.O. & Olumide, O. (2021a). Enablers of innovation implementation within quantity surveying firms in Lagos and Abuja. In Babalola, O., (Eds.), Confluence of theory and practice in the built environment – beyond theory into practice. EDMIC International Conference, Faculty of Environmental Design and Management, Obafemi Awolowo University, Ile-Ife, Nigeria and Faculty of Environmental and Technology, the University of the West of England, Bristol, UK. 6th – 8th July 2021.
vi. Ajayi, A.A., Babalola, O., Oyeyipo, O., & Anjorin-Ohu, A. (2021b). Examination of quality performance of indigenous and expatriate contractors in Nigeria: Client's perspective. Journal of Accounting and Management, 11(2). 91-102.
vii. Ajayi, A.A., Olugbemi, D.D., & Apete, L.A. (2022). Evaluation of conflict management styles of construction companies in Abuja, Nigeria. The International Journal of Business & Management, 10(1), 249-260.
viii. Antwi-Afari, P., Owusu-Manu, D.G., Parn, E., & Edwards, D.J. (2018). Explorative investigation of challenges and expectations of innovative quantity surveyors and quantity surveying firms in Ghana. International Journal of Technology, 7(), 1480-1489.
ix. Benmansour, C., & Hogg, K. (2002). An investigation into the barriers to innovation and their relevance within the construction sector. In: Greenwood, D. (Ed.) 18th Annual ARCOM Conference, 2-4 September 2002, University of Northumbria. Association of Researchers in Construction Management, Vol. 2, 677-686.
x. Birchall, D., Chanaron, J.J., Tovstiga, G., & Hillenbrand, C. (2011). Innovation performance measurement: current practices, issues and management challenges. International Journal of Technology Management, 56(1), 1-20.
xi. Bolarinwa, O.A. (2015). Principle and methods of validity and reliability testing of the questionnaire used in social and health sciences research. Nigeria Postgraduate Medical Journal, 22, 195-201.
xii. Bryman, A. & Bells, E. (2015). Business research methods 4th Edition, Oxford University Press, UK.
xiii. Carvache-Franco, O., Carvache-Franco, M., & Carvache-Franco, W. (2022). Barriers to innovations and innovative performance of companies: A study from Ecuador. Social Sciences 11: 63. https://doi.org/10.3390/socsci11020063
xiv. Chen, Z., Huang, S., Liu, C., Min, M., & Zhou, L. (2018). The fit between Organizational Culture and Innovation Strategy: Implications for Innovation Performance. Sustainability, 10(10), 3378–. https://doi.org/10.3390/su10103378
xv. Choi, S., Jang, H., & Hyun, J. (2009). Correlation between innovation and performance of construction firms. Canadian Journal of Civil Engineering, 36(11), 1722–1731.
xvi. de-Oliveira, R.T., Gentile-Ludecke, S., & Figueira, S. (2021). Barriers to innovation and innovation performance: the mediating role of external knowledge search in emerging economies. Small Business Economics, https://doi.org/10.1007/s11187-021-00491-8
xvii. Ghasemaghaei, M., & Calic, G. (2020). Assessing the impact of big data on firm innovation performance: Big data is not always better data. Journal of Business Research, 108, 147–162.
xviii. Ghasemzadeh, P. Nazari, J.A., Farzaneh, M., & Mehralian, G. (2019). Moderating role of innovation culture in the relationship between organizational learning and innovation performance. The Learning Organiation, 26(3), https://doi.org/10.1108/TLO-08-2018-0139
xix. Gunduz, M., & Alfar, M. (2019). Integration of innovation through analytical hierarchy process (AHP) in project management planning. Technological and Economic Development of Economy, 25(2). 258-276.
xx. Hardie, M., Miller, G., Manley, K., & McFallan, S. (2005). The quantity surveyor's role in innovation generation, adoption and diffusion in the Australian construction industry. Paper Presented at the QUT research week. Brisbane, Australia.
xxi. Hardie, M., Miller, G., Manley, K., & McFallan, S. (2012). Innovation performance and its impact on profitability among different sectors in the Australian construction industry. Construction Economics and Building, 6(1), 1-11.
xxii. Hardie, M., & Newell, G. (2011). Factors influencing technical innovation in construction SMEs: an Australian perspective. Engineering, Construction and Architectural Management, 18(6), 618-636.
xxiii. Ibrahim, A. (2013). Concept of value for money in public infrastructure development, Paper delivered at QSRBN/NIQS BCERT Held in Abuja, Nigeria, April 2013.
xxiv. Johns, R. (2010). Survey question bank: Methods fact sheet 1, Likert items and scale. University of Strathclyde. https://www.sheffield.ac.uk/polopoly_fs/1.597637!/file/likert factsheet.pdf

xxv. Jonas, E., & Donald, K. (2015). Push and pull factors of innovation performance in quantity surveying firms. Journal of Economics and Sustainable Development, 6(20), 188-196.

xxvi. Lee, S., Oh, H.Y., & Choi, J. (2021). Service design management and organizational innovation performance. Sustainability, 13(1), 4. https://doi.org/10.3390/su13010004

xxvii. Li, X., & Zheng, Y. (2012). The influential factor of employees' innovative behaviour and the management advice. Journal of Science and Management, 7(6), http://10.4236/jssm. 2014.76042.

xxviii. Li, Y., Song, Y., Wang, J., & Li, C. (2019). Intellectual Capital, Knowledge Sharing, and Innovation Performance: Evidence from the Chinese Construction Industry. Sustainability, 11(9), 2713–. https://doi.org/10.3390/su11092713

xxix. Lo, J.T.Y., & Kam, C. (2021). Innovation performance indicators for architecture, engineering and construction organization. Sustainability, 13, 9038. https:// doi.org/10.3390/su13169

xxx. Lu, S., & Sexton, M. (2006) Innovation in small construction knowledge-intensive professional service firms: a case study of architectural practice, Construction Management and Economics, 24(12), 1269-1282.

xxxi. Malik, S. (2014) Organizational Structure and Employee's Performance: A Study of Brewing Firms in Nigeria. American Research Journal of Business and Management 3(1) 2379-1047

xxxii. Mazur, K., & Inkow, M. (2017). Methodological aspects of innovation performance measurement in IT sector. Management, 21(2), 14-27.

xxxiii. Moyanga, D., Agboola, A., & Adegbembo, T. (2019). Innovativeness of quantity surveying firms in the Nigerian construction industry. Journal of Construction Project Management and Innovation, 9(2), 136-144.

xxxiv. Odei, M.A., Amoah, J., & Novak, P. (2021). Key barriers to small and medium enterprises innovation performance across Europe. In DOKBAT 2021 - 17th Annual International Bata Conference for PhD. Students and Young Researchers (Vol. 17). Zlín: Tomas Bata University in Zlín, Faculty of Management and Economics. Retrieved from http://dokbat.utb.cz/conference-proceedings/ ISBN: 978-80-7678-025-5

xxxv. Oglesby, C. H., Parker, H. W., & Howell, G. A. (1989). Productivity Improvement in Construction. McGraw-Hill, New York.

xxxvi. Ogunbayo, B., Ajao, A., Alagbe, O., Ogundipe, K.., Tunji-Olayeni, P., & Ogunde, A. (2018). Residents' facilities satisfaction in housing project delivered by the public-private partnership (PPP) in Ogun State, Nigeria. International Journal of Civil Engineering and Technology, 9(1), 562-577.

xxxvii. Olanipekun, A.O., Aje, I.O., & Abiola-Falemu, J.O. (2013). Effects of organizational culture on the performance of quantity surveying firms in Nigeria. International Journal of Humanities and Social Science, 3(5), 206-215.

xxxviii. Osunsanwo, H.F. & Dada, J.O. (2019). Evaluating quantity surveying firms' performance: an application of balanced scorecard technique. International Journal of Productivity and Performance Management, 69(1). 134-152.

xxxix. Owolabi, J., Faleye, D., Eshofonie, E., Tunji-Olayeni, P., & Afolabi, A. (2019). Barriers and drivers of innovation in the Nigerian construction industry, International Journal of Mechanical Engineering and Technology, 10(2), 334-339.

xl. Owusu-Manu, D., Torku, A., Parn, E., Addy, M., & Edwards, D. (2017). An empirical assessment of innovation practices of quantity surveying firms in Ghana. Journal of Construction Project Management and Innovation, 7(1), 1843-1858.

xli. Prajogo, D.I., & Ahmed, P.K. (2006). Relationships between innovation stimulus, innovation capacity, and innovation performance, Research and Development Management, 36(5), 499–515.

xlii. QSRBN (Quantity Surveyors Registration Board) (2020). The directory of quantity surveyors registration board of Nigeria. https://www.qsrbn.gov.ng/Members/firms.php?page=7 (accessed Nov. 2020).

xliii. Santiago, F., De Fuentes, C., Dutrénit, G., & Gras, N. (2016). What hinders the innovation performance of services and manufacturing firms in Mexico?. Economics of Innovation and New Technology, 26(3), 247-268.

xliv. Saunila, M. (2017). Understanding innovation performance measurement in SMEs. Measuring Business Excellence, 21(1), 1-16.

xlv. Suprum, E.V. & Stewart, R.A. (2015). Construction innovation diffusion in the Russian Federation: Barriers, drivers and coping strategies. Construction Innovation, 15(3), 278-312.

xlvi. Szambelan, S., Jiang, Y., & Mauer, R. (2019). Breaking through innovation barriers: Linking effectuation orientation to innovation performance. European Management Journal, (), S0263237319301434–. https://doi.org/10.1016/j.emj.2019.11.001

xlvii. Thomas, O.O. (2015). Effects of organizational structure on job satisfaction in the Nigerian financial sector: empirical insight from selected banks in Lagos State. NG-Journal of Social Development. 5(1), 96-108.

xlviii. Tseng, C. (2016). Strategy for increasing innovation at post-IPO firms. International Journal of Entrepreneurship, 20(1), 84-99.

xlix. Waheed, A., Miao, X., Waheed, S., Ahmad, N., & Majeed, A. (2019). How new HRM practices, organizational innovation, and innovative climate affect the innovation performance in the IT industry: A moderated-mediation analysis. Sustainability, 11(3), 621–. doi:10.3390/su11030621

l. Wang, Q., Zhao, L., Chang-Richards, A., Zhang, Y., & Li, H. (2021). Understanding the Impact of Social Capital on the Innovation Performance of Construction Enterprises: Based on the Mediating Effect of Knowledge Transfer. Sustainability, 13(9), 5099. https://doi.org/10.3390/su13095099

li. Xie, X., Zou, H., & Qi, G. (2018). Knowledge absorptive capacity and innovation performance in high-tech companies: A multi-mediating analysis. Journal of Business Research, 88, 289–297.

lii. Yankah, J.E. & Dadzie, D. K. (2015). Push and pull factors of innovation performance in quantity surveying firms. Journal of Economics and Sustainable Development, 6(20), 188-196.
liii. Yasamis, F., Arditi, D., & Mohammadi, J. (2002). Assessing contractor quality performance. Construction Management & Economics, 20(3), 211-223.
liv. Zheng, S., Li, H., & Wu, X. (2013). Network resources and the innovation performance: Evidence from Chinese manufacturing firms. Management Decision, 51(6), 1207-1224.
lv. Zizlavsky, O. (2016). Innovation performance measurement: research into Czech business practice. Economic Research-Ekonomska Istraživanja, 29(1), 816–838.